ЭКСПЕРИМЕНТАЛЬНЫЕ РАБОТЫ

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DISCOMYCETES FROM PLANT, LEAVE AND SPHAGNUM LITTER IN OMBROTROPHIC BOG (WEST SIBERIA)

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Collection of Discomycetes from two ombrotrophic bogs near Khanty-Mansiysk (boreal zone of West Siberia) was made by direct observation method. 80 specimens were identified and 51 taxa from four orders (Helotiales, Rhytismatales, Pezizales and Ostropales) revealed. Checklist with annotations presents data about occupied substrates, types of plant communities, macro and micro morphological descriptions and comparisons of ecology of species with reports from literature. This group was poorly known in ombrotrophic bogs and supplements our knowledge about the structure of fungal community of peatlands.

Key words: peatlands, bogs, fungi, Discomycetes, Helotiales, Ostropales, Pezizales, Rhytismatales

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INTRODUCTION

The term Discomycetes in earlier mycological systematic marked the taxon which now is not accepted. Still, it is appropriate to apply it when different taxa with cup-shaped ascoma (apothecia) are under investigation [Kirk et al., 2008]. Helotiales, Ostropales, Pezizales and Rhytismatales traditionally included under this name. Our list contains species from all these orders.

Research of biodiversity of this group in Khanty-Mansiysk region (KHMAO) is at the beginning. First prior check list for the area lists 800 species, only 1.5% of them present Discomycetes [Filippova, 2010]. Thus, almost all of species from our list will be first registrations for the territory. That is the reason why we decided to provide full descriptions of species, since it could be used in preparation of the future regional flora. On the other hand, absence of taxonomic treatment of this group in the area makes identification work difficult. Part of our taxa still remain unidentified (we still include them in the list with approximate or high-taxon identification).

Research on fungal community of bogs (and peatlands) has developed considerably over past two decades [Thormann, 2007]. Different aspects of community organization were concerned: decomposition rates of substrates across ecological variables; successions of species through decomposition; species richness of different microhabitats and others [Thormann, 2006]. It is noticed repeatedly, that the group of fungi linked to the degradation of the complex structural polymers (species of basidiomycetes and selected groups of ascomycetes) is underrepresented. The reason likely is methodological limitation, since isolation of many groups of fungi is problematic. The studies working with direct observation method should fulfill this gap.

The list of fungi from peatlands (compiled on the basis of reviewed mycological and ecological journals, selected systematic monographs, taxonomical and herbaria data bases) presently lists about 600 species (macrofungi and microfungi from four fungal phyla) [Thormann, 2007]. Discomycetes presented only about 7% of this list. All species from our study are new, thus being complementary to the picture.

Biodiversity of Discomycetes was part of our study on fungal community of ombrotrophic bogs (by direct observation method). Other traditional groups revealed through this investigation were macromycetes (mostly agaricales), corticioid and polyporoid macromycetes, perithecioid and imperfect ascomycetes, myxomycetes. From this collection (500 specimens, about 225 species) discomycetes represented near 20% of diversity of species of fungi in ombrotrophic bogs.

Fungi represent a crutial part of biota, which is essential in maintenance of ecological processes and human well-being. Currently, the global mycota is only partly described. At the same time, human-related activity leads to change of natural habitats and species lost. Bog ecosystems were largely altered in Europe,

leaving unchanged areas (as West Siberia) of special interest for inventory studies. Such studies about unimpaired ecosystems could provide information for restoration programms, prediction of ecosystem changes under human impact, and provide primary data for development of models of climate change.

METHODS

General methods of collection, specimen preservation and description of Discomycetes described elsewhere [Dennis, 1968; Hansen, 2000; Lodge et al., 2004]. More specialized information about selected taxa could be found in the corresponding monographs. Particularly, Discomycetes taxonomy requires observation of vital microstructures [Baral, 1992] and several microchemical reactions [Baral, 2009]. For quantitative estimation of biodiversity in this group, monitoring of plots and substrates is recommended [Lodge et al., 2004]. Other aspect of research is isolation in pure culture, which gives opportunity to observe different stages of species development and of help in many different applications [Cannon and Sutton, 2004].

We used method of direct observation to collect ascoma from the substrates. Litter and alive parts of plants were inspected with unaided eye and under the lens. No attempts were done to estimate frequency of species and the character of cumulative curve of biodiversity. Discovered species were photographed in vital and gross morphology was described, and then preserved in the Fungarium of Yugra State University (unregistered collection) (http://www.ugrasu.ru/UNESCO_FUNGARIUM/). Specimens were microscopied (Zeiss Axiostar microscope with mounted digital camera), microstructures were described and pictured. All our observations of microstructures are based on dead material. Identification was based on floras [Hansen, 2000; Dennis, 1968] and publications for corresponding taxa. Several works where close ecological groups and host plants are treated were also useful [Remler, 1979; Scheuer, 1988; Ellis and Ellis, 1997].

Each species description in the checklist starts with the substrate of collection. Following paragraph describes number of collections, date and accessory number, and type of plant community. Morphological descriptions of gross features and microstructures go then. Finally, ecology of species and distribution in the world from the literature are reported. We did not aim to collect all information about the ecology and known ranges of species from literature, but used data from one or several related publications.

Measurements of microstructures were done with AxioVision LE program. Usually, 20 measurements made for spores and 10 for other structures; when a few numbers are known we use “about” or “near”. Dimensions include mean value of the feature and minimum – maximum values, as: 52 (44–67) x 2.4 (2–2.6). Number of measured spores reported in brackets after the dimension (n=15).

SITE DESCRIPTION

Major part of collection was done in August 2012 at two ombrotrophic bogs near Khanty-Mansiysk. Some specimens were collected earlier in the same locations. The first bog – “Chistoe”, located 20 km to east from Khanty-Mansiysk, near Shapsha village, at the interfluve of Ob and Irtish rivers. It has irregular outline and the size about 5.5 x 2.5 km. The collections were done in its northern part in the radius about 0.5 km. The second bog – “Mukhrino”, is 20 km south-west from Khanty-Mansiysk, at the left bank of Ob river. It has near ellipsoid shape, size about 10 x 8 km. The trips for collecting were in its western part with the radius about 1 km. The field station of Yugra State University “Mukhrino” located there.

The area of study is in the central part of West Siberian plain, middle taiga subzone (boreal zone). General climate characteristics near Khaty-Mansiysk: average temperature of coldest month (January) about -20° C (from 3 to -53), warmest month (July) 17° C (from 37 to 1). Winter lasts for 26 weeks, and snow lays for 210 days, depth of snow being about 80 cm. Total year sun radiation near 3300 KDj*m^{-2}. Mean sum of precipitation about 500 mm, this prevails sum of evaporation for about 100–150 mm (precipitation-evaporation ratio about 1.5) [Dikunez et al., 2004].

Classification of peatlands of West Siberia is developed by Liss et al. [2001]. Types of peatland biogeocoenoses (microlandscapes) united there in three major classes: eutrophic, mesotrophic, and oligortophic. Studied communities belong to the third class. Since correlation between vegetation types and fungal community was not aimed in this study, we will generally describe two different ombrotrophic peatland types which occur constantly there. First type, treed communities, develops in places with low peatland water level. Two species of trees dominate in tree layer: *Pinus sylvestris* and *Pinus sibirica*. Well developed dwarf-shrubs layer presented by: *Chamaedaphne calyculata, Ledum palustre, Andromeda*

polifolia, *Betula nana*. Other plants inhabiting there are: *Rubus chamaemorus*, *Oxycoccus palustris*, *O. microcarpus*, *Eriophorum vaginatum*. Major sphagnum species dominating in treed bogs is *S. fuscum*, accompanied by *S. angustifolium*, *S. magellanicum*. Second type of communities (hollows, or carpets) develops under high water level (5–15 cm) and characterized by absence of trees and mostly dwarfshrubs. From the last, *Andromeda polifolia* adapted to water logging. Hollows dominated by graminoids (*Sheuchzeria palustris*, *Carex limosa*, *Carex rostrata*, *Eriophorum russeolum*, *E. vaginatum*, *Rhinchospora alba*). *Oxycoccus palustris*, *Drosera rotundifolia*, *D. anglica*, *Menyanthes trifoliata* present herbs. Hollows surface built by hydrophilic sphagna: *S. majus*, *S. balticum*, *S. jensenii*, *S. papillosum*.

Table 1. List of species with data about ecology, frequency, and admiration about unknown.

#	Species	Eco-group		Host species	Frequency	Habitat
1	Ascocoryne sarcoides (Jacq.) J.W. Groves & D.E. Wilson	lignicolous		Pinus	several times	treed
2	Ascocoryne turficola (Boud.) Korf	saprotroph on Sphagnum and other litter			several times	hollows
3	Ciliolarina neglecta Huhtinen	corticolous		Pinus	once	treed
4	Coccomyces duplicarioides Sherwood	foliicolous	*	Andromeda	once	hollows
5	Colpoma ledi (Alb. & Schwein.) B. Erikss	saprotroph on branches of dwarfshrubs		Chamaedaphne	several times	treed
6	Coronellaria caricinella (P. Karst.) P. Karst.	saprotroph on graminoid litter		Carex limosa	once	hollows
7	Dasyscyphella cassandrae var. cassandrae Tranzschel	saprotroph on branches of dwarfshrubs		Chamaedaphne	several times	treed
8	Fuscolachnum sp.	saprotroph on Sphagnum	☺	S. angustifolium	once	hollows
9	Godronia cassandrae f. cassandrae Peck	saprotroph on branches of dwarfshrubs		Chamaedaphne	once	treed
10	Gorgoniceps aridula (P. Karst.) P. Karst.	lignicolous		Pinus	once	treed
12	Gorgoniceps hypothallosa Svrček	lignicolous		Pinus	once	treed
11	Gorgoniceps sp.	corticolous	☺	Pinus	once	treed
13	Hamatocanthoscypha ocellata Huhtinen	corticolous		Pinus	once	treed
15	Helotiales gen. sp. (resemblance with Moellerodiscus)	parasitic (?) on Sphagnum	☺	S. angustifolium	once	hollows
16	Helotiales gen. sp. (resemblance with Pezoloma)	saprotroph on Sphagnum and other litter	☺		several times	hollows
14	Helotium schimperi Navashin	parasitic on Sphagnum	*	S. magellanicum	once	treed
17	Hyaloscypha albohyalina var. spiralis (P. Karst.) Boud.	lignicolous		Pinus	once	treed
18	Hyaloscypha aureliella (Nyl.) Huhtinen	lignicolous		Pinus	once	treed
19	Hyaloscypha leuconica var. bulbopilosa (Cooke) Nannf.	saprotroph on Sphagnum and other litter			several times	treed
20	Hyaloscypha secalina var. paludicola Huhtinen	saprotroph on graminoid litter		Eriophorum vaginatum	several times	hollows, treed
21	Hypoderma sp. (cf. alpinum Spooner)	saprotroph on graminoid litter	☺	Eriophorum vaginatum, Carex limosa	several times	hollows
22	Hysteronaevia advena (P. Karst.) Nannf.	saprotroph on graminoid litter		Eriophorum russeolum	once	hollows
23	Hysteronaevia olivacea (Mouton) Nannf.	saprotroph on graminoid litter		Carex rostrata, Carex limosa	several times	hollows
24	Hysteropezizella diminuens (P. Karst.) Nannf.	saprotroph on graminoid litter		Eriophorum russeolum	once	hollows
25	Lachnum schoenoplecti Raitv.	saprotroph on graminoid litter		Carex globularis	once	treed
28	Lophodermium oxycocci (Fr.) Duby	parasitic (weak) on leaves of Ericoids	*	Oxycoccus palustris, O. microcarpus	several times	hollows, treed
29	Lophodermium pinastri (Schrad.) Chevall.	parasitic (weak) on conifers	*	Pinus sylvestris	common	treed
30	Lophodermium pini-sibiricae C.L. Hou & S.Q. Liu	parasitic (weak) on conifers	*	Pinus sibirica	common	treed
26	Lophodermium sp. (cf. autumnalis)	saprotroph on leaves of dwarfshrubs	☺	Chamaedaphne	several times	treed

#	Species	Eco-group		Host species	Frequency	Habitat
27	Lophodermium sp. (cf. intermissum)	saprotroph on leaves of dwarfshrubs	☺	Andromeda, Ledum, Oxycoccus	several times	treed
33	Mollisia ramealis (P. Karst.) P. Karst.	saprotroph on branches of dwarfshrubs	☺	Chamaedaphne	several times	treed
34	Mollisia retincola (Rabenh.) P. Karst	saprotroph on graminoid litter		Carex rostrata	several times	hollows
31	Mollisia sp. (cf. cinerea)	saprotroph on branches of dwarfshrubs	☺	Chamaedaphne	once	treed
32	Mollisia sp. (cf. melaleuca)	lignicolous	☺	Pinus	several times	treed
35	Monilinia oxycocci (Woronin) Honey	parasitic on ericoids	*	Oxycoccus palustris	several times	hollows
36	Myriosclerotinia caricis-ampullaceae (Nyberg) N.F. Buchw.	parasitic on graminoids	*	Carex rostrata	several times	hollows
37	Myriosclerotinia dennisii (Svrček) J. Schwegler	parasitic on graminoids	*	Eriophorum vaginatum	several times	hollows
38	Nimbomollisia eriophori (L.A. Kirchn.) Nannf.	saprotroph on graminoid litter		Scheuchzeria palustris, Carex limosa or Eriophorum spp.	once	hollows
39	Nimbomollisia macrospora (P. Karst.) Nannf.	saprotroph on graminoid litter		Carex rostrata	once	hollows
40	Niptera lacustris (Fr.) Fr.	saprotroph on graminoid litter		Scheuchzeria palustris	once	hollows
41	Odontotrema minus Nyl.	lignicolous		Pinus	once	treed
42	Ombrophila lacustris Velen.	saprotroph on graminoid litter	☺	Carex rostrata	once	hollows
43	Pezicula eucrita (P. Karst.) P. Karst.	corticolous		Pinus	once	treed
44	Phaeohelotium pilatii (Svrcek) Declercq	lignicolous		Pinus	once	treed
45	Phialina lachnobrachya (Desm.) Raitv.	saprotroph on leaves of dwarfshrubs		Chamaedaphne	once	treed
46	Pseudophacidium ledi (Alb. & Schwein.) P. Karst.	saprotroph (?) on branches of dwarfshrubs		Chamaedaphne	once	treed
47	Pseudoplectania sphagnophila (Pers.) Kreisel	saprotroph on Spagnum		S. fuscum	several times	treed
48	Rhytisma andromedae (Pers.) Fr.	parasitic on leaves of ericoids	*	Andromeda polifolia	common	hollows, treed
49	Roeslerina media Y.J. Yao & Spooner	parasitic (?) on roots		Rubus chamaemorus	once	treed
50	Scutomollisia sp.	saprotroph on graminoid litter	☺	Eriophorum vaginatum	several times	treed
51	Vibrissea obconica (Kanouse) A. Sánchez	saprotroph on branches of dwarfshrubs		Chamaedaphne	once	treed

Footnote: * marks species with host specificity to single plant species; ☺ – taxa where identification not completed and further taxonomical (very interesting, indeed ☺) work should be following.

RESULTS

From 80 analyzed specimens 51 taxon identified, 13 were not identified reliably to species and need further taxonomic work to be done.

Identified species were from 4 orders and 9 families. Richest order was Helotiales (38), following Rhytismatales (10) and single species from Pezizales (1) and Ostropales (1). Large part of species were from Hyaloscyphaceae (10), Rhytismataceae (9), Helotiaceae (7) and Dermateaceae (6), with single species from Sclerotiniaceae (3), Vibrisseaceae (1), Sarcosomataceae (1), Odontotremataceae (1) and Ascodichaenaceae (1).

Ecological structure of Discomycetes community of bogs is quite complex. Species from two major ecological groups, saprotrophs and parasites, are presented. Classification of species by inhabiting substrate reveals following. Most number of species are saprotrophs on graminoid litter (13), next abundant groups are lignicolous species (8) and saprotrophs on branches of dwarfshrubs. Less populated by saprotrophic Discomycetes substrates are: *Sphagnum* litter (5), bark (4 corticolous species), leaves of dwarfshrubs (4 foliicolous species). Parasites (or weak parasites) include species on *Sphagnum* (2), on leaves of ericoids (3), on conifers (2), graminoids (2), and on roots of *Rubus* (1). Target group of fungi was related to 16 species of vascular plants and mosses being more or less specialized in host species. Only 9 fungal species were host

specialized (mostly parasites): *Coccomyces duplicarioides, Rhytisma andromedae, Myriosclerotinia caricis-ampullaceae, Myriosclerotinia dennisii, Monilinia oxycocci, Lophodermium oxycocci, Lophodermium pini-sibiricae, Lophodermium pinastri, Helotium schimperi*.

Occurrence of species was not targeted by this study, but some speculative estimation could be done from the frequency of specimens. Most of species was encountered only once (28), large part was collected twice or several times (20), and 3 species were speculatively estimated as common.

CHECKLIST WITH ANNOTATIONS

***Ascocoryne sarcoides* (Jacq.) J.W. Groves & D.E. Wilson**

Decorticated wood (*Pinus sylvestris*).

Several times, constantly on this substrate, 28.08 (#Kh-3876), 06.09.2012 (#Kh-4038), in treed pine – dwarfshrubs – sphagnum communities.

Apothecia turbinate, stipitate-turbinate, up to 7 x 4 mm, pink. Conidioma clavate, with distinguishable head and stem, head round to irregularly compressed and lobed, up to 4 mm height, head whitish and stem pink. Spores ellipsoid to fusoid, some slightly curved, 14.8 (13.3–16.6) x 4.2(3.9–4.5) mk (Q=3.5; n=10)

In North Europe described as common species from temperate to subarctic zone [Hansen, 2000]. It tends to occur on recently cut stumps, in opposite to *Ascocoryne sarcoides*, preferring old covered by mosses stumps. Presently, we were able to find only *A. sarcoides* in ombrotrophic bogs, and its niche on bog pine logs supplements species ecology.

***Ascocoryne turficola* (Boud.) Korf**

Dead leaves of *Carex limosa*, branches of dwarfshrubs, sphagnum litter.

There were several collections of this species from ombrotrophic hollows and treed bogs. Morphology and ecology described in a separate publication [Filippova et al., 2013].

***Ciliolarina neglecta* Huhtinen**

Detached bark (*Pinus sylvestris*).

Single collection, 09.09.2012 (#Kh-3894), in pine – dwarfshrubs – sphagnum community.

Apothecia cupulate, stipitate, receptacle concave to flat, stem thin, outer surface powdery from short hairs, disc smooth, whitish, translucent, up to 180 x 170 mk. Excipulum from textura prismatica, cells cylindrical in stem and enlarged ellipsoid at flanks; hairs cylindrical to clavate, 2-3 celled, end cells rough (covered by warts, which dissolve in MLZ), 20 x 4 mk; asci cylindrical, clamped, with amyloid pore, 23 x 4.3 mk; paraphyses scarce, the same length as asci, with 1-2 septa at base, gradually enlarged to obtuse tip, 34 x 1.5 x 2.4 mk, some branched at base; spores pip-shaped, 5.2 (4.7–6) x 1,8 (1.6–2.1) mk (Q=2,94; n=12).

Species described from the Canadian timberline, and collected from Finland, Norway. It inhabits coniferous litter: wood, bark and cones (*Pinus* and *Picea*). It is showed to be common in Norwegian forests, where it inhabits *Pinus sylvestris* and *Picea abies* [Raitviir, Huhtinen, 2002].

***Coccomyces duplicarioides* Sherwood** (fig.1)

Dead leaves of *Andromeda polifolia*.

Single collection, 30.09.2009 (#Kh-0995), graminoid – sphagnum hollow with *Andromeda polifolia*.

Hysterothecia circular, subcuticular, elevated under the surface to become cylindrical or expanded in upper part, to 0.8 x 1.5 mm, edge minutely dentate, outer surface black to grayish, hymenium surface gray. Excipulum not studied; asci clavate, long-stalked, with conical tip and pronounced pore site, about 190 x 15 mk; paraphyses filiform, circinate, up to 3 mk broad; spores needle-shaped, heteropolar, embedded in thick gelatinous sheath, about 56 x 3 mk (n=5).

The species was described from collection in Magadan region, and its distribution was unknown so far [Sherwood, 1980]. In our case it was collected on the same plant, and probably it is host specific.

***Colpoma ledi* (Alb. & Schwein.) B. Erikss**

Dead twigs of *Chamaedaphne calyculata*.

Several times, 06.08.2009 (#Kh-4140), 28.08.2010 (#Kh-4141), 04.08.012 (#Kh-3779), in treed bogs.

Apothecia bursting through the bark of twigs by longitudinal slit, ellipsoid to fusoid, straight, curved or forked, up to 5 mm long, 1.5 mm broad, hymenium gray to blue when alive, surrounded by black deflexed margin. Asci long-clavate, clamped, about 100 x 8 mk; paraphyses filiform, curled in upper part, exceeding

asci, 1.5 mk broad; spores vermiform, with obtuse and pointed ends, about 50 x 1.5 mk (measured approximately inside the asci).

A small number of records are known from Scandinavia, one collection from Ukrain. Species occupies twigs of *Ledum* (*L. tomentosum*, *L. palustre*) [Minter, 1994; Minter, 1996; Lantz et al., 2011].

***Coronellaria caricinella* (P. Karst.) P. Karst.** (fig.2)

Dead leaves of *Carex limosa*.

Single collection, 06.08.2012 (#Kh-3730), graminoid – sphagnum hollow.

Apothecia immersed in leaf tissue, opening by ellipsoid lid, up to 250 mk by long axis, disc convex, white from richly incrusted paraphyses. Excipulum from textura prismatica, brown, end cells fusoid, to 50 mk long, with brown content, with some incrustations; asci with hemiamyloid pore (water/lugol), amyloid after KOH pretreatment, 70–82 x 10.3–13.4 mk; paraphyses strongly encrusted, exceeding the asci up to 50 mk, with cylindrical lower half and fusoid upper, upper segment with yellowish-brown content, 3.3 mk broad at base, 8.6 mk in largest part; spores fusoid, heteropolar, many-guttulate, 15.3 (14.4–16.2) x 4.4 (4.2–4.6) (Q=3,5; n=14).

The species was earlier reported from alpine and lowland locations in Europe [Scheuer, 1988]. It collected from sedges with different ecology (*Carex echinata*, *C. paupercula*, *C. elata*). First two species also commonly associated with peat bogs.

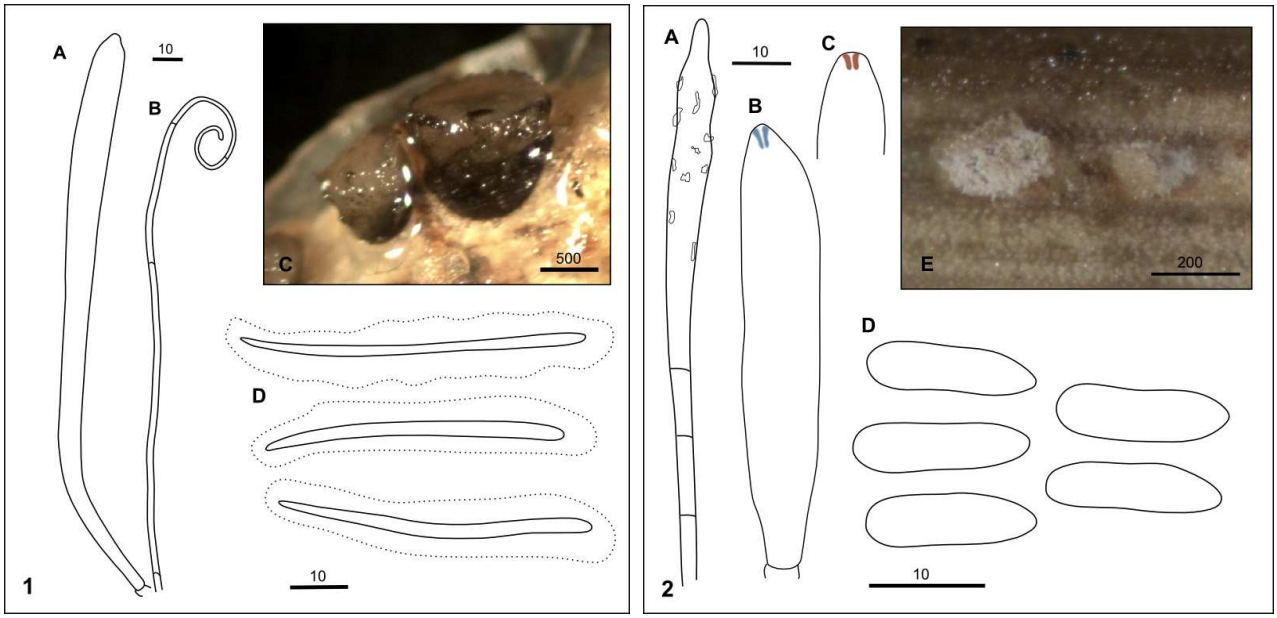

Figure 1, 2. 1) *Coccomyces duplicarioides*. A. Ascus. B. Paraphysis. C. Apothecia. D. Spores. 2) *Coronellaria caricinella*. A. Paraphysis. B. Ascus, ring stained with Lugol with KOH pretreatment. C. Ascus ring stained with Lugol without KOH. D. Spores. E. Apothecia.

***Dasyscyphella cassandrae* var. *cassandrae* Tranzschel**

On dead branches of *Chamaedaphne calyculata*.

Several collections, common species on this substrate, 24.06.2012 (#Kh-3601), 04.08.2012 (#Kh-3666), in pine – dwarfshrubs – sphagnum communities.

Apothecia cupulate, stipitate, receptacle to 1 mm in diameter, stipe to 1 mm height, hymenium yellowish, outer surface pure white, outer surface and stipe densely covered by hairs, growing scattered or in bands. Excipulum from textura porrecta in stipe (cells near 4 mk broad), textura prismatica at flanks (cells ellipsoid, with thickened walls, 20–30 x 6–8 mk); hairs cylindrical, to 150 mk long, rough at base, smooth in upper part, 4-6 celled, the base slightly broader (3 mk) and tip slightly enlarged, the narrowest part under the tip being near 2 mk; asci clavate, tip obtuse-conical, sometimes with protruding pore site, without clamp, pore euamyloid, 92.5 (80–116) x 10 (8–11); paraphyses cylindrical, scarcely branched, segmented, 2 mk broad, not exceeding the asci; spores vermiform, without or with 1-4 septa (already inside asci), 52 (44–67) x 2.4 (2–2.6) (n=14) (real length some longer since measurements done in curved state).

The species inhabits dead stems of *Chamaedaphne calyculata* (principal host), *Ledum palustre* and *Vaccinium* spp. and widely distributed from Europe to Kamchatka. North American population (on

Chamaedaphne calyculata) differs in having asci with croiziers and thus another varietal rank is described (*v. uncinata*) [Raitviir, 2002].

***Fuscolachnum* sp.**

On capsule of *Sphagnum angustifolium*.

Single collection (about 10 apothecia), 04.08.2012 (#Kh-3670), graminoid – sphagnum hollow.

Apothecia cupulate, stipitate, up to 300 mk in diameter, about 200 mk height, receptacle 50 mk height; hymenium surface flat or convex, smooth, gray; outer surface brownish, with parallel roughness; edge smooth, the same color as hymenium. Excipulum from textura porrecta, hyphae 3.3–4.3 mk broad, cells 13 mk long in the middle of receptacle, some swollen at the base, cylindrical otherwise, grayish-brown, in all parts with minute warty ornamentation; end cells at the edge (hairs) cylindrical, not enlarged, about 20 mk long, with the same roughness and some lighter in color; asci clavate, thickened at tip, clamped, with small stalk or sessile, with small euamyloid pore, 8-spored, 21.4 (18–25) x 5.6 (5–6.6); paraphyses lageniform, not branched, 1-2 segmented at the base, 29–35 x 1.2–1.8 x 2.7–4; spores narrowly ellipsoid and pip-shaped, some slightly curved, with two small guttules at the ends (vital observations), 4.6 (4.1–5.4) x 1.3 (1.2–1.6) (Q=3.5; n=18).

The species probably underdescribed (Stip Helleman, Hand Otto Baral, comments at AscoFrance). Other species of *Fuscolachnum* inhabit different hosts (*Dryas, Rubus,* cryptogams) as saprotrophs or necrotrophic parasites (*F. necator* on *Polytrichum juniperinum)* [Huhtinen, 2011].

***Godronia cassandrae* f. *cassandrae* Peck** (fig. 3)

Dead twigs of *Chamaedaphne calyculata*.

Single collection, 21.08.2012 (#Kh-3808), pine – dwarfshrubs – sphagnum community.

Apothecia cupulate (spherical with small pore when young), bursting through the bark of twigs, sessile or with short stipe, up to 1 mm in diameter, site single or 2–3 in clusters, outer surface rough, dark brown. Excipulum from textura prismatica, but at the base from irregular arranged black cells, at mid-flanks from brown prismatic cells 10–15 x 7–9 mk, at collar (part exceeding hymenium) from two layers, external layer from brown textura prismatica, internal layer from textura oblita/gelatinosa, inner hyphae covered by warts, medulla from textura porrecta, hyphae parallel to flanks; asci cylindrical, enlarged in mid-length, with short stalk and clamp, with amyloid pore (KOH, lugol), 80–107 x 8.3–12.2 mk; paraphyses filiform (1 mk broad), septate, rarely branched, upper part slightly enlarged (2 mk), with some gelatinous encrustation; spores needle-shaped, heteropolar, up to 7-septate, often germinating from upper end, 56 (46–66) x 2.6 (2–3) mk (n=28).

Species of the genus considered to be at least weak parasites. Several species have economical importance causing diseases of cultivated plants (*Vaccinium uliginosum* an example). Genus range appears to be north-temperate – subarctic (Groves, 1965). There is another species of *Godronia* related to bog dwarfshrubs (*G. andromedae, G. callunigera, G. urceoliformis*), but we were able to find only one of them so far. *G. cassandrae* has wide host range, with different forms described on the basis of host species.

***Gorgoniceps aridula* (P. Karst.) P. Karst.**

Decorticated wood (*Pinus sylvestris*).

Single collection, 07.09.2012 (#Kh-4053), pine – dwarfshrubs – sphagnum community.

Apothecia turbinate, 300–500 mk width, 200 mk height, gray to brownish in different specimens, hymenium minutely rough, with some adherent released spores, dry exsiccate light gray with slight green tinge. Excipulum from textura porrecta, hyaline or dark brown in different specimens, hyphae thick-walled, 3–3.5 mk broad; asci clavate, clamped, with amyloid pore, 126.7 (113–152) x 13.4 (12.2–14.6) mk; spores filiform, with 7 septa, heteropolar, some with buds arising at both ends, 72.5 (65–82) x 2.4 (1.8–2.8) mk (n=20).

Saprotroph on wood and bark (preferably *Pinus),* with rare collections in North Europe [Hansen, 2000]. Its niche seems wider than of *G. viridula* (close species which is truly corticolous) [Huhtinen, Iturriaga, 1987]. We found two collections (one of them corticolous – G. sp, see below). But this corticolous specimen was not well matching the description of *G. viridula.* Both these taxa should be recollected and studied more deeply to clarify the picture.

***Gorgoniceps* sp.**

Detached bark (*Pinus sylvestris*).

Single collection, 09.09.2012 (#Kh-4100), pine – dwarfshrubs – sphagnum community.

Apothecia turbinate to pustulate, 350–500 mk in diameter, yellowish-gray when fresh, becoming orangish on drying. Excipulum from textura porrecta, brown at base, hyaline at margin, hyphae thick-walled, 2.5–3.5 mk broad; asci clavate, clamped, with amyloid pore, 130 (114–146) x 14 (11–15.6) mk; spores filiform, many-septate, heteropolar, old spores bud abundantly from all cells, 72 (61.1–82.4) x 2.7 (2.1–3.3) mk (n=20); paraphyses the same length as asci, slightly enlarged to the tip, irregularly curved, branched.

***Gorgoniceps hypothallosa* Svrček**

Decorticated wood (*Pinus sylvestris*).

Single collection, 06.09.2012 (#Kh-4024), pine – dwarfshrubs – sphagnum community.

Apothecia pulvinate to cupulate, thick, brick-reddish, up to 500 x 150 mk, hymenium surface flat or convex, smooth, outer surface smooth, the same color, brownish at the base. Excipulum from textura porrecta, hyphae at the edge obtuse, not enlarged; asci large, enlarged to the tip, tip conical, with amyloid pore, with poor distinguishable clamps, 117 (104–135) x 9 (8.3–10.5) mk; spores fusoid, some bent, slightly heteropolar, 1–3 segmented, with several round guttules (in dead state), 19 (14–26.6) x 3 (2.4–3.4) mk; paraphyses cylindrical, branched, 1.5 mk broad.

The species described from spruce bark and was collected on *Pinus sylvestris* wood from Norway and Check republic. The mode of living somehow involves other fungi, represented by constantly registered deteriorated crusts of hyphae at the bases of apothecia [Raitviir, Huhtinen, 2002].

***Hamatocanthoscypha ocellata* Huhtinen**

Detached bark (*Pinus sylvestris*).

Single collection, 09.09.2012 (#Kh-4101), pine – dwarfshrubs – sphagnum community (on the same piece of bark as *Ciliolarina neglecta*).

Apothecia cupulate, short-stipitate, whitish, disc smooth, outer surface and edge appear powdery from short hairs, near 200 x 160 mk. Excipulum textura prismatica from enlarged near ellipsoid cells (near 10 x 7 mk in mid-length of excipulum), becoming near cylindrical in stipe; hairs uncinate, with attenuated slightly curved tips (about 20 x 2.5 mk); asci cylindrical, clamped, about 30 x 5 mk, with amyloid pore; spores elliptical to obovate, with two round guttules (dead state), 5.8 (4.9–7.3) x 2.4 (2–2.7) mk (n=15); paraphyses the same length as asci, cylindrical, with 1–2 septa at base, 2 mk broad, occasional encrustation.

Ecology of species dedicated to bark of conifers (*Pinus*, *Picea*), collections made from Japan and Finland. It is one species in the genus characterized by corticolous niche [Huhtinen, 1990].

***Helotium schimperi* Navashin**

On leaves in capitula of *Sphagnum magellanicum.*

Single finding, 06.08.2012 (#Kh-3698), pine – dwarfshrubs – sphagnum community, sphagnum from low hummock.

Apothecia turbinate, translucent, whitish to pink, to 0.5 mm width, smooth, site at leaves (phyllids) in capitula of *Sphagnum*. Excipulum from textura prismatica, with dextrinoid reaction in MLZ (KOH), cells at the base larger, more ellipsoid (20 x 10 mk), narrower to the edge, end cells obtuse, cohered (15 x 5 mk); receptacle attaches to the substrate by the bunch the hyphae from cylindrical cells (15 x 5 mk); asci clavate, with pronounced clamp, with amyloid pore, 85 (78–93) x 10.5 (9.2–11) mk; spores fusoid, with obtuse ends, with amorphous oil content (in vital state), with several medium and small guttules in KOH, mature spores 1–2 septate (septum scarcely seen), 15.3 (13.7–17.2) x 5.3 (4.8–5.8) mk (Q=2,9; n=16); paraphyses cylindrical, slightly bulged in different parts, segmented, branched in 2–4 parts or unbranched, 1.5–3 mk broad.

This species was considered to be parasitic on certain *Sphagnum* species (*S. squarrosum*), but it was not the case in our specimen (*S. magellanicum*). Two these species of sphagna have different ecology (minerotrophic and ombrotrophic) and at first we considered a hypothesis of different species. But morphological comparison hasn't revealed significant differences with the description. *H. shimperi*'s mode of living is quite interesting. It is parasitic. The way of attack was described thoroughly in the literature [Redhead, 1981]. Our observation partly confirms this behavior; also some new features were noticed. The species should be recollected and reexamined with improved technique.

***Helotiales* gen. sp. (resemblance with *Moellerodiscus*)**

In between leaves and branches of upper green part of *Sphagnum angustifolium.*

Single collection, 30.08.2012 (#Kh-3918), graminoid – sphagnum hollow.

Apothecia turbinate, with long stipe, hymenium convex, edge bent down to the stipe, up to 2 mm height, 0.8 mm width at disc, stipe and receptacle surfaces minutely granulate, stipe arise from light-brown sclerotium, which placed between leaves, sclerotium ellipsoid, 0.5 x 0.3 mm, stem pale ochraceous, hymenium surface lighter, whitish, sclerotium light brown. Ectal excipulum from textura angularis, cell walls with dextrinoid and in some parts of tissue amyloid reaction, cells large, ellipsoid, thin-walled, near 30 x 5 mk, from the outer walls of large cells arise rough clavate 2–4 celled hairs (30 x 8 mk) which create granulate structure of stem (warts dissolve in KOH and hairs become smooth), cells become smaller to the edge of receptacle, edge covered with the same clavate hairs (10 x 5 mk); medullary excipulum from bunch of vascular hyphae 5–15 mk broad, cells about 60 mk long or longer; sclerotial excipulum from isodiametric thick-walled cells, inner tissue reacts with MLZ (strong violet in some areas); asci clavate, clamped, with weak amyloid pore, 62 (57–70) x 6.4 (5.5–7); paraphyses vary strongly from 2 to 7 mk broad, enlarged from base to the tip, branched, central part often wider then side branches and many segmented, mean length 90 mk; spores acerose, 6 in ascus, 20.2 (16.1–28) x 1.9 (1.7–2.1) (Q=10.5; n=16).

Probably underdescribed taxon. H.-O. Baral (comments at AscoFrance) suggested it relation to *Moellerodiscus advenulus* (saprotrophic on needles). Further taxonomical work is necessary.

***Helotiales* gen. sp. (resemblance with *Pezoloma*)**

Sphagnum and plant (mainly sedges) litter.

Several times, 29.08.2012 (#Kh-3907), 30.08.2012 (#Kh-3920), graminoid – sphagnum hollows.

Apothecia discoid to cupulate, sessile, to 1.5 mm in diameter, white, outer surface and edge with large stiff hairs. Excipulum from textura globosa-prismatica, cells at the base globose, 45 x 30 mk, becoming prismatic and smaller to the edge (17 x 15 mk), edge with a row of clavate cells (23 x 5 mk); inner layer of excipulum from textura porrecta, better developed at flanks of receptacle, hyphae 4.5 mk broad; medullary excipulum not distinguished; outer gelatinous tissue absent; hairs to 400 mk long, 13 mk broad at base, straight or slightly bent, with thick glassy walls (3.5 mk), segmented, narrowing to obtuse tip (5 mk); asci clavate, with stalk, obtuse at tip, clamped, 65.8 (53–72.5) x 8.3 (7.8–8.8) mk, pore with amyloid reaction (KOH, MLZ); paraphyses cylindrical, branched, segmented, 1.3–2 mk broad; spores ellipsoid, with obtuse ends, some curved, with 2–3 large and some small guttules (in dead state), 11 (10.5–11.5) x 3 (2.8–3.2) mk (n=15).

Probably underdescribed taxon and needs to be studied by contemporary methods of fungal systematic (H.-O. Baral, comments at AscoFrance).

***Hyaloscypha albohyalina* var. *spiralis* (P. Karst.) Boud.**

Decorticated wood (*Pinus sylvestris*).

Single collection, 06.09.2012 (#Kh-4033), pine – dwarfshrubs – sphagnum communities.

Apothecia cupulate, shallow, up to 500 mk in diameter, growing single or in clusters, with undulating edge when mature, sessile, whitish, hymenium surface smooth, concave or flat, outer surface and edge hairy. Hairs densely covering outer surface from base to edge, largest hairs at the edge with pronounced ventrum and attenuated tip, up to 85 mk long, 8 mk broad at base, no reaction with MLZ; asci clavate, clampless, 52 (44–60) x 7.5 (7–8.2) mk; spores ellipsoid-cylindrical, with several round guttules (dead state), 10.3 (8.4–13.2) x 2.7 (2.4–3) mk (n=15); paraphyses filiform, 1.2 mk broad, rarely branched, septate.

Common in Europe, and also known from North America, Russia, Japan. It has wide ecological niche, collected from wood (coniferous and deciduous) and from other miscellaneous substrates [Huhtinen, 1990].

***Hyaloscypha aureliella* (Nyl.) Huhtinen**

Decorticated wood (*Pinus sylvestris*).

Single collection, 28.08.2012 (#Kh-3877), pine – dwarfshrubs – sphagnum community.

Apothecia discoid, cupulate when young, with wavy edge when old, grayish in centre, white at the edge, with well seen hairy edge (hairs also cover outer surface), with yellowish incrustation at the hairs, 500–700 mk in diameter. Hairs blunt, with abundant resinaceous incrustation (well seen at dry specimens and in water, dissolving in KOH), no reaction with MLZ, 54 (46–64) x 5 (3.8–5.8) mk; asci clavate, with pronounced clamp, amyloid pore, 31.5 (7–38) x 4.8 (4.4–5.9) mk; paraphyses cylindrical, 1–2 septated, 32 x 1.6 mk, some shorter then asci; spores elliptical – fusoid, slightly heteropolar, 6.8 (6.2–7.4) x 2.3 (2.1–2.5) mk (n=20).

Widespread and common species with circumpolar range. It niche, though, quite constant, showing preference for decorticated fallen trunks and larger branches of conifers [Huhtinen, 1990].

***Hyaloscypha leuconica* var. *bulbopilosa* (Cooke) Nannf.**

Litter of dwarfshrubs (leaves and twigs), sphagnum dead parts.

Several times, 06.08.2012 (#Kh-3691, #Kh-3689), regularly collected from different litter in pine – dwarfshrubs – sphagnum communities.

Apothecia cupulate, short-stipitate, about 100–150 mk in diameter, whitish, with long straight hairs. Hairs enlarged at base and gradually narrowing and attenuated at tip, with dextrinoid reaction, largest hairs 135 mk long, 6 mk broad at base, smooth; asci cylindrical, clamped, with amyloid pore, 25.5 x 4 mk; paraphyses cylindrical with some enlarged upper part, with 1 septa; spores narrowly ellipsoid, some slightly curved, 7.3 (6–8.3) x 1.6 (1.4–1.7) mk, (Q=4.67 (4.11–5.36); n=15).

Known from Europe, Asia and North America with wide ecological amplitude (fruits on hardwood and softwood; conifers and deciduous; also on smaller ligneous substrates) [Huhtinen, 1990].

***Hyaloscypha secalina* var. *paludicola* Huhtinen**

Dead leaves of *Eriophorum vaginatum*.

Several times, 04.08.2012 (#Kh-3678), different communities where the host grows.

Apothecia discoid, sessile, 200–600 mk, white, circular to irregular when old, with wavy edge, hymenium convex to concave when old, outer surface and edge covered by small hairs. Excipulum from textura prismatica, cells quite thick-walled, about 10 x 5 mk in the middle of receptacle, shorter to the edge; hairs lageniform, with cylindrical base narrowing abruptly to filiform upper part, tips slightly tibiiform, 19–28 (length) x 3–5 (base) x 0.7–1 (tip) mk, with slight incrustation (in water), hairs densely cover the edge and scarcely at outer surface; asci cylindrical, some enlarged to obtuse-conical tip, clampless, pore euamyloid, 54.5 (38–74) x 5.8 (5.3–6.6) mk; paraphyses cylindrical, branched at base, 2–3 segmented in base part; spores narrow-ellipsoid, rarely septate, 7.9 (7.2–8.7) x 1.8 (1.6–2.1) mk (Q=4.3; n=16).

Known from small number of collections (Finland, Norway). Collections go from herbaceous litter (*Potentilla palustris, Eriophorum vaginatum*) in bogged sites [Huhtinen, 1990].

***Hypoderma* sp. (cf. *alpinum* Spooner)**

Dead leaves of *Eriophorum vaginatum*, *Carex limosa*.

Twice, 04.08.201 (#Kh-3647), treed community and hollows.

Hysterothecia ellipsoid, expand when overmature to circular, to 0.9 x 0.5 mm, open by longitudinal slit (rarely bursting irregular with 3–4 lobes), later expanding to short-cylindrical, outer surface blackish, with more or less pronounced yellow rim at the edge, hymenium grayish. Ectal-excipulum of flanks from textura epidermoidea, inside lays hyaline textura globosa, edge with yellowish collar from cylindrical cells about 15–20 x 4 mk; base of receptacle lined with thin layer of labirinthuloid tissue; subhymenium from parallel hyphae 2.5 mk broad; asci clavate, with clamp, inamyloid, 76-109 x 11.4–13 mk; paraphyses cylindrical, 1 mk broad, circinate, branched in upper part, with broadened base (to 5 mk) separated from upper part by septa; spores subfusoid, curved, some with gelatinous sheath, with two big guttules and plenty of small (dead state), 27.3 (24–33) x 3.9 (3.3–4.4) mk (Q=7.05; n=17).

Since the systematic of this group is quite complicated, we were not fully successful with identification. It resembles *H. alpinum* but spores and asci in our specimen some larger. *H. alpinum* described from Britain, growing as saprotroph of *Carex aquatilis*, *C. bigelowii* [Spooner, 1981]. Nearby growing anamorphic stage in our specimen (*cf. Leptostroma*) must be related to this species.

***Hysteronaevia advena* (P. Karst.) Nannf.**

Dead leaves of *Eriophorum russeolum*.

Single collection, 06.08.2012 (#Kh-4135), in one collection with *Hysteropezizella diminuens*, graminoid – sphagnum hollow.

Apothecia ellipsoid, opening by ellipsoid slit, about 200 mk by long axis. Excipulum textura angularis to prismatica, end cells clavate; asci clavate, with thickened wall, inamyloid, 75 x 16 mk; paraphyses cylindrical, with some enlarged tips, with gelatinous sheath, hyaline or brownish, 1.9 mk broad at base, up to 4 mk at tip; spores long, fusoid to falcate, 1–3 septate, many-guttulate, 39 (32.5–44.4) x 3.6 (3.3–4.6) mk (Q=10.94; n=15).

Saprotroph with host specificity to members of *Eriophorum* genus (collected from *E. russeolum, E. vaginatum, E. angustifolium, E. scheuchzerii*). Besides wide range of host plant, *H. advena* range restricted to subarctic and arctic. It is known from Fennoscandia, Europe and North America [Nannfeldt, 1984].

***Hysteronaevia olivacea* (Mouton) Nannf.** (fig. 4)

Dead leaves of *Carex rostrata, Carex limosa*.

Twice, 18.09.2012 (#Kh-4128), 06.08.2012 (#Kh-3723), graminoid – sphagnum hollows.

Apothecia immersed, circular to short-ellipsoid, 140–250 mk, opening by ellipsoid lid (rarely by irregular patches), disc pale yellowish-brownish, surrounded by more or less distinct edge. Excipulum from textura angularis, cells with thickened walls, brown, about 10 mk in diameter at base and flanks, more prismatic (10 x 5 mk) to the edge, end row of cells (hairs) cylindrical, two-celled, to 25 x 5 mk, tips obtuse, smooth; asci clavate, clamped, inamyloid, 58.7–66.6 x 14–17.5 mk; paraphyses cylindrical with enlarged clavate brownish end segment, lower part segmented, about 3 mk broad, with outgrowths or branched, upper segment enlarged to 5 mk, with yellowish-brown content, occasionally with incrustation, exceeding the asci for about 10–15 mk, embedded in gelatinous substance; spores fusoid, some curved, slightly heteropolar, many-guttulate, 25 (22.1–29) x 4.5 (3.8–4.8) mk (Q=5.6; n=13).

Saproptroph with wide host-specificity and distribution in Europe and North America. It collected from *Carex rostrata, C. limosa, C. magellanica, C. aquatilis, C. acuta, C. bigelowii* etc. [Nannfeldt, 1984].

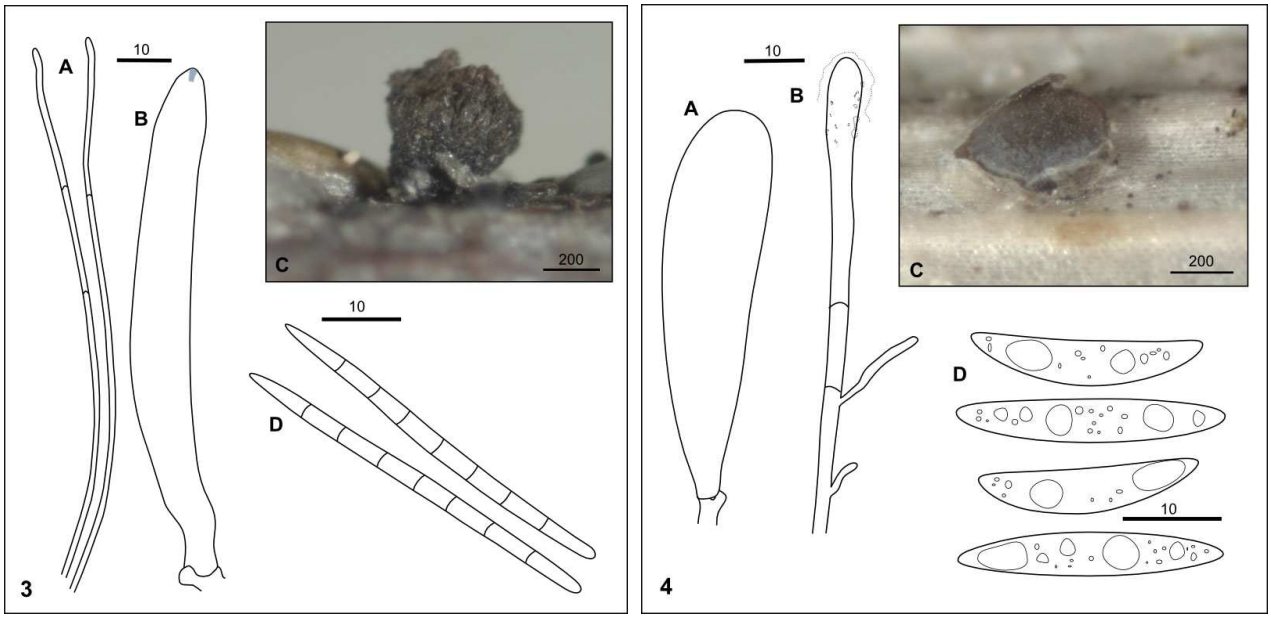

Figure 3, 4. 3) *Godronia cassandrae* f. *cassandrae*. A. Paraphyses. D. Ascus, ring stained with Lugol. C. Apothecium. D. Spores. 4) *Hysteronaevia olivacea*. A. Ascus. B. Paraphysis. C. Apothecium. D. Spores.

***Hysteropezizella diminuens* (P. Karst.) Nannf.**

Dead leaves of *Eriophorum russeolum*.

Single collection, 06.08.2012 (#Kh-3738), graminoid – sphagnum hollow.

Apothecia immersed in tissue, ellipsoid, to 350 x 170 mk, opening by ellipsoid slit, disc pale, surrounded by dark brown edge. Excipulum from textura angularis at base, cells dark brown, about 10 mk in diameter, textura prismatica at the edge, end cells (hairs) cylindrical or clavate, 15–20 x 5–8 mk, brown, walls of the end cells under immersion with roughness; asci clavate, inamyloid, 59–67 x 12.5–14.6 mk; paraphyses cylindrical with ampuleform end cell, about 3 mk broad and segmented in lower part, ampuleform cell up to 5 mk in broadest part, hyaline, with small guttules (rarely seen in rehydrated), not or some exceeding the asci; spores fusoid, heteropolar, many-guttulate, 17 (15.7–17.7) x 3.7 (3.4–4.2) mk (Q=4.67; n=13).

Saprotroph with wide host-specificity (graminoids from Poaceae, Juncaceae, Cyperaceae: *Carex, Eriophorum, Festuca, Juncus*, etc.) [Defago, 1968; Scheuer, 1988].

***Lachnum schoenoplecti* Raitv.**

Dead leaves of *Carex globularis*.

Single collection, 21.08.2012 (#Kh-3805), treed bog.

Apothecia cupulate, stipitate, white with white or yellowish hymenium, disc to 0.5 mm in diameter, whole apothecia about 300 mk height; edge ciliate from hairs, outer surface and stipe covered by hairs. Excipulum textura porrecta/ prismatica at stem, textura globosa/prismatica at flanks, cells with thickened walls, about 10 x 6.5 mk; hairs with enlarged base and tip, grow from 1–2 globose cells at base, measured

length x width at neck x width at tip: 47–70 x 2–3 x 3–5 mk; asci cylindrical, clampless, pore amyloid, 33–44.5 x 3.5–4.2 mk; paraphyses lanceolate, exceeding the asci for 30 mk, broadest in the middle of length, with 2–3 septa in basal part, sometimes with 2–3 outbranches in basal part, 63–73 x 2.6–3.4 mk (width in broadest part); spores narrow-fusoid, with small guttules at the ends, 14 (12.2–16.6) x 1.5 (1.4–1.6) mk (Q=9.5; n=17).

Described from *Schoenoplectus lacustris*, and collected from *Scirpus sylvaticus* and other scirpoid substrates. Probably can grow saprotrophically on different monocotyledons. Its findings were scarce and diffuse (Switzerland, Kamchatka) at the time of description [Raitviir, Baral, 1988].

***Lophodermium* sp. (cf. *autumnalis*)**

Litter of *Chamaedaphne calyculata* leaves.

Several times, 06.08.2012 (#Kh-3710), in treed communities.

Hysterothecia circular to ellipsoid, 0.5–1 mm in diameter, concave, splitting longitudinally or radially with 3–4 lobes, flanks black, edge of labile the same color (the specimens underdeveloped, but asci with spores inside was observed). Flanks from outer host layer and fungus textura epidermoidea, underlayed by thick layer of near globose cells; palisade layer of labile not developed, edge made from the same cells of inner tissue; excipulum at base of receptacle from textura porrecta/ epidermoidea, radially arranged; asci clavate, with conical tip and pronounced pore site, inamyloid, clamped, 157–182 x 13.5–20 mk; paraphyses filiform, circinate in upper part, 2 mk broad; spores needle-shaped, straight, 73–92 x 2–2.5 mk (n=6), apparently larger since measured spores were forced to release from asci.

There are not finished identification for several our specimens of *Lophodermium* species. This species (collected only from fallen leaves of *C. calycula*) has morphological similarity with *L. autumnalis*, but Tehon [1935] describes it for *Abies* (needles). Further work with literature needed to clarify identification.

***Lophodermium* sp. (cf. *intermissum*)**

Leaves in litter (*Andromeda polifolia, Ledum palustre, Oxycoccus palustris*).

Several times, 04.08.2012 (#3658), treed communities and hollows.

Hysterothecia ellipsoid to circular, to 0.6 mm in diameter, to 200 mk height, subcuticular, margin elevated, edge with yellowish (or hyaline, probably underdeveloped), hymenium gray, outer surface black. Flanks from outer layer of host epidermis and inner layer of fungus textura epidermoidea; palisade layer well developed, light yellowish-brown, from prismatic arranged in columns cells (glued together), up to 5–6 cells in each column (30 x 5 mk); asci clavate, clamped, inamyloid, 79–88 x 6.4–10.2 mk; paraphyses filiform, larger at base (to 2.5 mk), about 1.5 mk otherwise, with many small guttules, circinate at upper part; spores needle-shaped, 24 (21.5–26) x 1.3 (1.1–1.5) mk (n=12).

Several specimens from leaves of *Ledum*, *Andromeda* and *Oxycoccus* relatively similar and appear to be the same species. It was not identified reliably either. *Lophodermium intermissum* reported to be host specific with *Andromeda polifolia* [Minter, 1994] and our specimens roughly coincide with its description. Further work with literature needed to clarify identification.

***Lophodermium oxycocci* (Fr.) Duby**

Dead leaves in litter of *Oxycoccus palustris, O. microcarpus*.

Several times, 04.08.2012 (#Kh-3663), treed communities and hollows.

Hysterothecia ellipsoid (expanding when overmature to circular), to 0.7 mm at long axis, first concave with longitudinal slit, then flat-cylindrical to trapeziform; flanks blackish, edge when mature with pale rim, hymenium translucently-grayish. Excipulum from outer layer of host tissue, inner layer from textura epidermoidea to amorphous brown tissue, edge with palisade layer of ventricose cells 15–20 mk long, about 2.5 mk at base, base of receptacle from brown prismatic-epidermoid cells, radially arranged; asci clavate, with not pronounced clamp, inamyloid, 69–83 x 5–6.2 mk; paraphyses clavate (near 2 mk at base and enlarged in upper part to 4.5), scarcely branched, segmented in lower part, exceeding the asci for about 10 mk, spores needle-shaped, some curved in apical region, 27 (25–29) x 0.8 (0.7–1) mk (n=11).

Parasitic and host specific of cranberry (*V. macrocarpon, V. oxycoccus*). Inhabits dead leaves, but may cause disease of living plants (cranberry twig blight). Known from North Asia, Europe and North America [Minter, 2005].

***Lophodermium pinastri* (Schrad.) Chevall.**

Dead needles of *Pinus sylvestris*.

Usual species in treed communities, 06.08.2012 (#Kh-3686).

Common and widespread at its host range, weak parasite.

***Lophodermium pini-sibiricae* C.L. Hou & S.Q. Liu**

Dead needles of *Pinus sibirica*.

Usual species in treed communities with the host, 20.08.2012 (#Kh-3781).

Common and widespread at its host range, weak parasite.

***Mollisia* sp. (cf. *cinerea*)**

Dead twigs of dwarfshrub (probably *Chamaedaphne calyculata*).

Single collection, 06.08.2012 (#Kh-3708), treed bog.

Apothecia flat, gray, outside brownish, when mature with convoluted edge, when young even round, without subiculum or with scarce hyphae at the base. Excipulum from round cells, 20 mk in diameter at base, 8 mk at the edge, hairs absent, edge from short clavate cells; asci cylindrical, clamped, with amyloid pore, 34.5 x 3.5 mk; paraphyses grow from deeper layer than asci, cylindrical, obtuse, 60 x 2.5 mk, not much exceeding the asci, with dextrinoid content; spores fusoid, slightly curved, 6.4 (5.9–7) x 1.5 (1.4–1.6), Q=4.36 (3.69–4.91) (n=10).

Identification of several of *Mollisia* species remains unfinished since difficulties with the taxon. Two morpho-species were allocated at two different substrates. All species of the genus are saprotrophs.

***Mollisia* sp. (cf. *melaleuca*)**

Decorticated wood (*Pinus sylvestris*).

Two collections, 06.09.2012 (#Kh-4017), 28.08.2012 (#Kh-3874), treed bog.

Apothecia cupulate (young) to flat with wavy edge (old), growing single or 2–3 nearby, hymenium gray with whitish edge, outside brownish, lighter at the edge, up to 2 mm across. Excipulum at base from textura angularis, cell 10–15 mk wide, brown, lighter to the edge, edge cells clavate, near 15 x 5 mk; asci with amyloid pore, clamped, 51 (45–55) x 5.7 (5.3–6.1) mk; paraphyses cylindrical, no reaction with KOH, not branched or with 1 outgrowth at base, with 2–3 septa at base, about 60 x 2.7 mk, in old specimens some paraphyses brownish, with incrustation, agglutinated in bundles; spores ellipsoid, slightly bent, with minor oil content, 9.5 (8.4–10.7) x 2.5 (2.1–2.9) mk (n=13).

***Mollisia ramealis* (P. Karst.) P. Karst.**

Dead twigs of *Chamaedaphne calyculata*.

Single collection 24.06.2012 (#Kh-3605), regularly noticed earlier, treed bogs.

Apothecia from turbinate to cupulate, sessile, thick, up to 1.5 mm in diameter; outer surface brown at base, lighter at the edge, velvety, edge under high magnification short-ciliate; hymenium surface plane to concave, yellowish-gray; attached to bark without subiculum. Ectal excipulum from textura globosa, cells with brown walls, 15 mk broad, in 3–5 layers; medulla from textura intricata, loosely arranged hyphae 2.5 mk broad, with yellowish exudates; crystals in medulla abundant; hairs at flanks from 2–3 globose cell and upper clavate, up to 30 mk; edge hairs from prismatic cells and upper cylindrical segment, about 50 x 5 mk; asci cylindrical, with clamp, pore euamyloid, 72.8–98 x 7–8.7; paraphyses cylindrical, exceeding the asci about 15 mk, segmented in basal part, scarcely branched, upper segment with VBs (torquose stain), KOH -, 3.5–4.6 broad; spores narrow-fusoid, 22 (20–23.7) x 2.5 (2.2–2.6) (Q=8.85; n=17).

Described in the literature from the bark and wood of small dead branches of *Betula* and other deciduous trees. Common in Estonia [Raitviir, 2003; Dennis, 1950]. Ericaceous hosts have not been reported before for this species.

***Mollisia retincola* (Rabenh.) P. Karst**

Leave sheaths of *Carex rostrata*.

Two collections, 06.08.2012 (#Kh-3720), 23.08.2012 (#Kh-2835), graminoid – sphagnum hollows at the edge of bog.

Apothecia first turbinate, then expanding to flat with wavy margins, thick, up to 4 mm in diameter, single or in clusters, emerging through the epidermis; outer surface velvety, brown, disc surface from greenish, olive, to light brown and yellowish gray. Excipulum from several layers, medullar from textura prismatica/intricata, hyphae about 4 mk broad, walls thickened, not gelatinous, with brown exudates; ectal layer from chains of globose – ellipsoid cells (7–10 mk); hairs cover all outer surface, from 3–5 cells (to 40 mk long), end cell elongated, clavate or cylindrical (25 x 5–8 mk), wider at flanks and narrower at margin, with oil content, which colored blue in TB; asci cylindrical, without clamp, pore euamyloid, 99–112 x 6–7.5

mk; paraphyses cylindrical, segmented, branched, largest exceeding the asci with oil content which colored blue in TB; spores narrow-fusoid or subfusiform, 18 (16–19) x 2.2 (2–2.4) mk (Q=8.23; n=15).

Saprotroph, collected from *Phragmites spp.* (*P. communis, P. australis*) where apothecia are placed above the water line or at not submerged in water litter [Van Ryckegem and Verbeke, 2005].

***Monilinia oxycocci* (Woronin) Honey**

Parasite on berries of *Oxycoccus palustris*.

Several times, 15.05.2008 (#Kh-0960), 27.05.2008 (#Kh-4142), 13.05.2009 (#Kh-1136), hollows and treed bogs.

Apothecia arise from mummified berries (pseudosclerotia), usually single, rarely 2–3 in clusters, cupulate, long-stipitate; disc at first narrow, goblet-shaped, then expanding to broadly cupulate, 5 mm in diameter, outer surface dull, from dark to light brown, reddish-brown, hymenium surface the same color, smooth; stem up to 7 cm long, 1 mm thick, same color as disc in upper part, darker to black at the base, smooth in upper part, pubescent from brown mycelium at the base. Asci cylindrical, near 143 x 10 mk; paraphyses cylindrical, 2–2.5 μm broad; spores ellipsoid, slightly inequilateral, part of spores abortive, larger spores being 13.8 (12.7–15) x 6.7 (6.3–7.3), (Q=2.1; n=15).

Parasitic of cranberry, causing serious disease in cultivated plantations. Fungus cause primary infection through ascospores attacking young shoots (blight of shoots and flowers) and secondary infection through conidia attacking flowers and causing rot and sclerification of berries [Sanderson, Jeffers, 1992]. Species common to rare in Northern Europe [Hansen, 2000].

***Myriosclerotinia caricis-ampullaceae* (Nyberg) N.F. Buchw.**

Leaf sheaths of *Carex rostrata*.

Several times, in ombrotrophic bog 06.09.2012 (#Kh-4010) (hollows at the edge of bogs), others in marshes where the host inhabits.

Apothecia arise from long fusoid sclerotium, single or in clusters to 6; sclerotium buried inside of young leaf sheaths, up to 20 cm long, 6 mm thick in middle part, narrowing gradually to sharp ends; apothecia deep cupulate, expanding to plane when overmature, 2 cm in diameter, outer surface dull, brown, reddish brown, hymenium surface the same color, smooth; stem up to 15 cm long, cylindrical, gradually narrowing to the base, irregularly curved, dark brown to black at base. Microscopic features not examined (no specimens saved in herbarium).

Parasitic on *Carex rostrata, C. aquatilis*. Fungus form microconidial stage (sporodochia) on culms, and sclerotia placed between leaf sheaths of young shoots. Recorded occasionally in Northern Europe [Hansen, 2000].

***Myriosclerotinia dennisii* (Svrček) J. Schwegler**

Dead stems of *Eriophorum vaginatum.*

Several times, sclerotia collected regularly, but apothecia registered rarely, 04.05.2008 (#Kh-1951), 10.05.2010 (#Kh-0133), 04.08.2012 (#Kh-3679), all communities where the host inhabit.

Apothecia arise from dark sclerotia, sclerotia fusiform, up to 8 mm long, 1 mm thick, disc cupulate, up to 4 mm wide, outer surface fine-pubescent, brown, hymenium surface smooth, the same color, stipe up to 5 mm long, the same color as cap, fine pubescent or smooth. Asci cylindrical, near 115 x 8.7 mk; paraphyses cylindrical, segmented, 2 mk broad; spores narrowly ellipsoid, some fusoid, slightly inequilateral, 13.4 (12.3–15.2) x 5 (4.7–5.3) mk (Q=2.67; n=18).

Parasitic on *Eriophorum, Scirpus cespitosus* or *Eleocharis uniglumis* in Northern Europe (occasional or rare). Microconidial state not registered, sclerotia develop within the stems or leaf sheaths [Hansen, 2000].

***Nimbomollisia eriophori* (L.A. Kirchn.) Nannf.**

Dead leaves of *Scheuchzeria palustris*, *Carex limosa* or *Eriophorum spp.* (exact host not registered)

Single collection, 02.10.2009 (#Kh-1044), graminoid – sphagnum hollow.

Apothecia not described (collection absent). Short description of microstructures prepared from several micro-pictures (the specimen was lost). Asci clavate, 85–100 x 10–13 mk (n=3); paraphyses cylindrical (1.5–2 mk), with enlarged and curved upper segment (4 mk), with VBs, spores ellipsoid, with 1 septum, with appendages at the ends 19.6 (17.1–21.8) x 5.4 (4.7–5.8) mk (n=11; length measured with appendages).

Saprotroph on *Cyperaceae* and *Juncaceae* (*Carex spp., Eriophorum spp., Juncus spp.,* etc.) in wet habitats. Known from many European locations and in Great Britain [Nannfeldt, 1983].

***Nimbomollisia macrospora* (P. Karst.) Nannf.** (fig. 5)

Dead leaves of *Carex rostrata*.

Single collection, 15.08.2012 (#Kh-3767), graminoid – sphagnum hollows at the edge of bog.

Apothecia discoid, up to 0.5 mm in diameter, circular, bursting through the epidermis with irregular flaps aside, flat, light brownish with brown edge; hymenium surface plane to concave, edge some raised under hymenium, irregularly dentate; apothecia densely covering outer surface of the leaf. Excipulum from textura prismatica/ porrecta, hyphae with thickened walls, about 4 mk broad, at areas with abundant brown encrustation, at flanks with scarce free ends, edge from cylindrical cells with obtuse ends to 50 mk long; asci clavate, with clamp, in upper part conical with flattened dome, pore euamyloid, with 2 large spores or occasionally with 8 underdeveloped small, 83 (77–93.5) x 10 (9–10.5) mk; paraphyses cylindrical, segmented, branched, tip some enlarged, curved, embedded in gel, about 1.5 mk broad at base, to 4 mk at tips, exceeding the asci for about 15 mk; spores fusoid, some curved, 3-septate, prepared in water with many large and small guttules, 32–37 x 6.2–7.3 mk (n=10).

Saprotroph on *Cyperaceae* (*Carex spp.*, *Eriophorum spp.*) with montane and northern distribution [Nannfeldt, 1983].

***Niptera lacustris* (Fr.) Fr.**

Dead leaves of *Scheuchzeria palustris*.

Single collection, 18.09.2012 (#Kh-4127), graminoid – sphagnum hollow.

Apothecia turbinate to discoid, sessile, 260–430 mk in diameter, about 150 mk height, hymenium flat or concave, light brownish, outer surface brown, site single, superficially on the substrate. Excipulum from textura globosa, cells about 15 mk at base, 10 mk at flanks, at the edge short-clavate, about 10 mk long; cells with thickened walls, glued together, brown at flanks, lighter at the base and edge; asci broad, cylindrical or some enlarged to obtuse-conical tip, with short stalk, with small clamp, pore euamyloid, 74–105 x 12.4–17.6 mk; paraphyses cylindrical, branched, segmented, with enlarged circinate apices, which raised under the asci, immersed in gelatinous substance, 1.5 mk broad at base, 3.5 mk at tips; spores ellipsoid, 2-celled, when in asci with gelatinous sheath, 22 (20.6–25.3) x 5.5 (4.8–6.4) mk (Q=3.8; n=16).

The species grows saprotrophically on floating stems of *Scirpus lacustris* and *Phragmites* [Nannfeldt, 1985]. Substrate of our collection probably reported for the first time.

***Odontotrema minus* Nyl.** (fig. 6)

Decorticated wood (*Pinus sylvestris*).

Single collection, 06.09.2012 (#Kh-4020), treed bog.

Apothecia submerged in wood, deep cupulate (spherical when young), up to 300 mk wide, hymenium grayish, yellowish, smooth, outer surface rough, dark brown. Excipulum from thick mass of dead cells, irregular or cylindrical (not well distinguishable); asci bottle-shaped, bulged in the middle, extending in length when mature, clampless, near 60 x 15 mk, ascus wall with amyloid reaction in upper part, pore inamyloid; spores ellipsoid, 3-segmented when mature, 12.7 (11.4-14) x 5.7 (5.3-6.1) mk (n=20); paraphyses filiform (1 mk), rarely segmented at base.

Lignicolous on hard weathered wood (conifers: *Larix*, *Pinus*, *Picea*; deciduous: *Salix*, *Sorbus*). Reported from Scandinavia and Alps, also Britain, North America [Sherwood-Pike, 1987].

***Ombrophila lacustris* Velen.**

Leave sheaths of *Carex rostrata*.

Single collection, 23.08.2012 (#Kh-3834), graminoid – sphagnum hollow at the edge of bog.

Apothecia turbunate, with long stipe (16 mm), gradually enlarging to receptacle (4 mm in diameter), outer surface of stem covered by slime, disc and outer surface have the same whitish color, translucent. Stem composed of outer gelatinous layer, excipulum (textura porrecta) and medulla (gelatinous), receptacle lacking outer gelatinous layer, and have excipulum from textura globosa/ prismatica, medulla the same; cells of prismatica at stem 46 x 8.7 mk; at flanks 40 x 15 mk; hyphae in medulla 2.5 mk broad; outer gelatinous layer hyphae 1.7 mk broad, ended with enlarged clavate cells up to 8 mk broad; asci cylindrical, with not clear clamp, pore euamyloid, 64.5–74.7 x 5–6.5; paraphyses cylindrical with some enlargement at the tip (2 mk), segmented, rarely branched; spores fusoid when in asci, becoming strongly curved upon release, many guttulate, 19.5 (18–21) x 2.5 (2.2–2.7) (10 straight spores).

Saprotroph on fallen leaves of *Eriophorum* [Velenovsky, 1934], *Carex vesicaria* [Baral, 1988] in bogged locations.

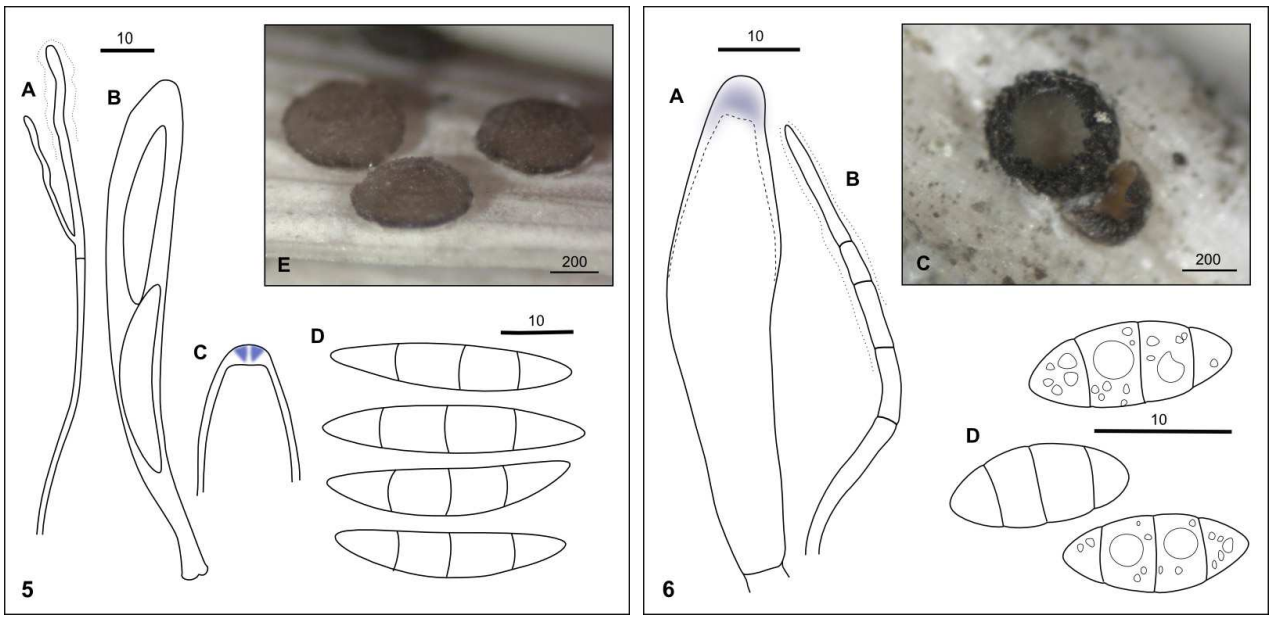

Figure 5, 6. 5) *Nimbomollisia macrospora*. A. Paraphysis. B. Ascus. C. Ascus ring stained with Lugol. D. Spores. E. Apothecia. 6) *Odontotrema minus.* A. Ascus. B. Paraphysis. C. Apothecia. D. Spores.

***Pezicula eucrita* (P. Karst.) P. Karst.**

Detached bark of *Pinus sylvestris*.

Single collection, in one sample with *Gorgoniceps*, 09.09.2012 (#Kh-3866), treed bog.

Apothecia turbinate to thick-discoid, sessile, superficial, 0.3–0.7 mm wide, 0.3 mm height, disc orangish, receptacle the same color, brownish when overmature, slightly pruinose to torn at the edge. Excipulum from textura angularis, thick-walled cells to 10 mk broad, with bright yellow content somewhere in tissue, cells becoming more prismatic to the edge; upper part of receptacle covered with 3–4 celled brown hairs, about 40 mk long and 4 mk broad, end cells clavate; paraphyses cylindrical, branched, with clavate brown ends some exceeding the asci, about 2 mk broad in lower part, and up to 6 mk in upper part, tip with thickened wall, covered by some amorphous incrustation; asci clavate, with obtuse tip, site on broad clamp, 4-spored, with strong amyloid ring around the pore about 3.5 mk, about 102 x 18 mk; spores (larger) ellipsoid, slightly curved, not septated when in asci, when overmature many septated, some with oblique septa, with several big guttules and abundant small amorphous oil, producing conidia from all cells, 30.4 (27.4–34.8) x 8.4(7.4–9.8) (12 not germinating spores).

The species fructification registered on recently fallen bark and cones of conifers (*Abies*, *Larix*, *Picea*, *Pinus*); as endophyte registered in broad-leaved trees [Verkley, 1933]. Known from North America and Europe.

***Phaeohelotium pilatii* (Svrcek) Declercq**

Decorticated wood (*Pinus sylvestris*).

Single collection, 07.09.2012 (#Kh-4056), treed bog.

Apothecia turbinate, with short stipe, hymenium surface convex, growing in clusters (2–4), 2.5–3.5 mm in diameter, hymenium surface bright yellow, smooth, outer surface yellowish, pale, brownish at stipe base. Outer layer of excipulum from textura globosa (at base) to porrecta (at the edge), from thick-walled cells; asci cylindrical, long, with amyloid pore, about 167 x 9 mk; spores very variable in shape, disarticulating in two parts, and budding when overmature, with gelatinous sheath (not in all spores), with several medium guttules and amorphous oil content, 1–2 septated when overmature, mean shape fusoid, with obtuse ends, measurement for 10 mean spores: 14.2 x 5.3 mk; conidia with long stalks, 5 x 3 mk; paraphyses cylindrical, not enlarged to the tip, rarely branched, many segmented (about 5-7 septa), about 150 x 2.3 mk.

Lignicolous on coniferous wood (*Picea abies* an example) [Declercq, 2004].

***Phialina lachnobrachya* (Desm.) Raitv.**

Leave litter of *Chamaedaphne calyculata*.

Single collection, 04.08.2012 (#Kh-3650), treed bog.

Apothecia discoid, sessile, 150–450 mk in diameter, white or yellowish, outer surface and edge covered with soft hairs. Excipulum from textura prismatica, cells irregular, at flanks are longer (25 x 5 mk),

shorter at the edge (10 x 8 mk), the base from brown textura epidermoidea, hairs arise densely from the edge and scarcely from lower part; hairs to 150 mk long, 4 mk broad at base, 4–6 segmented in basal part, attenuated to filiform (1 mk) upper part, covered by yellowish incrustation; asci clavate, clamped, with amyloid pore, 32.2 (29.6–35.1) x 5.5 (4.9–6.6) mk; paraphyses cylindrical, some enlarged to the tip, 2–3 segmented in basal part, some branched in 2–3 parts in basal part, 38–46 x 2.3–2.9; spores (rare in studied specimen) 4 in asci, fusoid, heteropolar, with 2 guttules, 12.6–13.7 x 2–2.3 (n=3).

The species is foliicolous on different hosts (tree species, and ericaceous dwarfshrubs also being reported). Widely distributed in Europe, North America, Caucasus, Far East [Huhtinen, 1990].

***Pseudophacidium ledi* (Alb. & Schwein.) P. Karst.**

Dead twigs of *Chamaedaphne calyculata*.

Single collection, 04.05.2008 (#Kh-0194), treed bog.

Apothecia pulvinate, ellipsoid to circular, about 1.3 mm broad and 0.7 mm height, emerging from bark, covered by black layer at first, which splits irregularly to open gray hymenium. Asci clavate, with pronounced stalk, spores ellipsoid, slightly curved to reniform.

Saprotroph (parasitic?) on branches of ericaceous plants (*Rhododendron, Ledum, Chamaedaphne, Calluna*), but occasionally on *Betula, Juniperus* [Egger, 1966].

***Pseudoplectania sphagnophila* (Pers.) Kreisel**

Surface of sphagnum hummocks (*S. fuscum* in our observations).

Several times, 26.06.2008 (#Kh-0136), 29.06.2008 (#Kh-3155), 30.06.2008 (#Kh-3156), 13.06.2011 (#Kh-3266), treed communities.

Apothecia growing in groups up to 20 nearby, some in clusters 2–3, or single, cupulate, deep cupulate, sessile or with short stipe, to 1.5 cm in diameter, outer surface black, dull, at the base with black coarse mycelium, hymenium surface grayish-brown to brown, smooth, with narrow black edge. Spores round, smooth, near 11.5 mk in diameter (n=7) .

Saprotroph on sphagnum (often *S. fuscum*), rare in North Europe [Hansen, 2000].

***Rhytisma andromedae* (Pers.) Fr.**

Alive leaves of *Andromeda polifolia*.

Common in this season (epidemic developed), 04.08.2012 (#Kh-3642), different communities where the host grows.

Conidioma black flat pustules, covering part or all upper leaf surface, near round, 3 mm width, could be merged in single shield, conidial mass emits through small pore surrounded by slight depression, sticky and whitish. Conidia cylindrical, blunt-pointed, near 7 x 1.5 mk.

Parasitic on leaves of *Andromeda polifolia* (but not causing death of the plant), rarely on other ericaceous hosts, widespread but infrequently recorded in Europe and North America [Minter, 1994]. Conidia produced in late summer, stroma with ascomata form in July. Draining of wetlands in Europe reduces the species occurrence [Minter, 1996].

***Roeslerina media* Y.J. Yao & Spooner** (fig. 7)

Roots and stolons of *Rubus chamaemorus*.

Two times, 24.06.2012 (#Kh-3602), treed bog.

Fruitbodies capitate, with hyaline filiform stem and pure white spherical capitula (mazaedium), growing in clusters or scattered, up to 1.5 mm high, head about 200 mk in diameter, stem to 80 mk thick. Stem from textura porrecta, hyaline or yellowish at the base in some specimens; hyphae at base about 5 mk broad, cells on average 50 mk long, becoming some shorter and thinner in upper part; asci cylindrical, clampless, inamyloid, with thin wall (moniliform from protruding spores), 33–44 x 4–5.2 mk; paraphyses cylindrical or with clavate end segment, segmented, slightly to highly exceeding the hymenium, with several round oil guttules, 47–74 x 3–4.4 mk; spores hyaline, spherical, 4.7 (4.1–5.1) mk (n=25).

The species described from England and probably was not collected following the description. The substrate of collection reported as unknown roots [Yao, Spooner, 1999]. Root parasite, other members of the family could cause disease of commercial plants [Redhead, 1984].

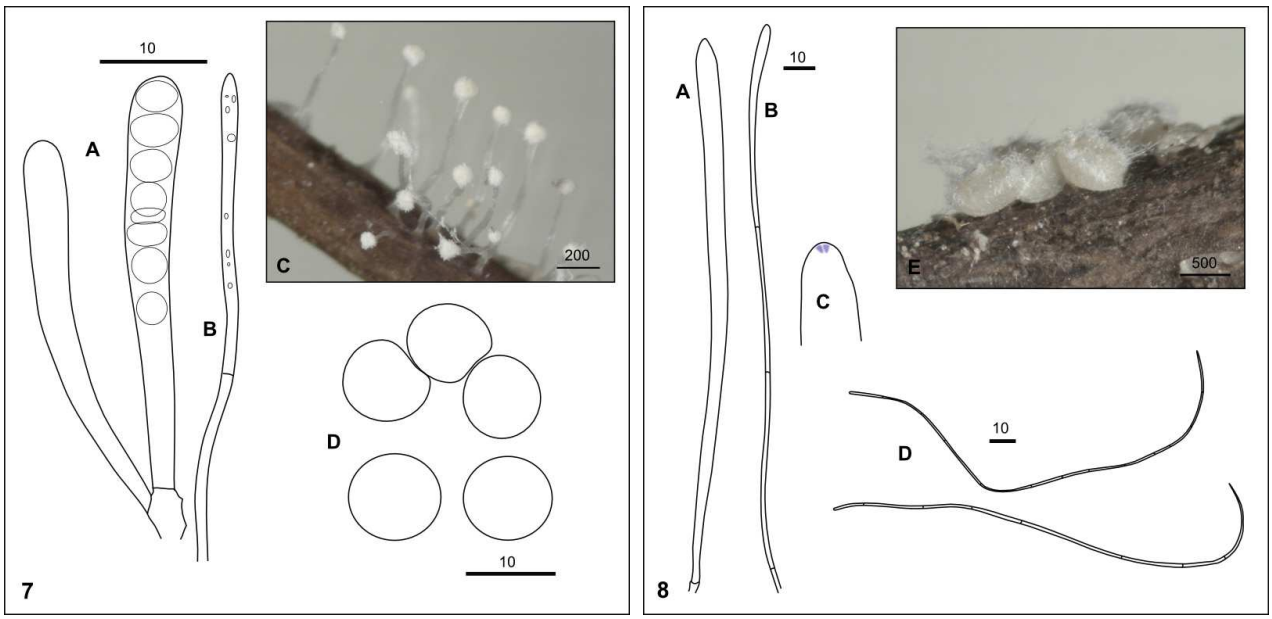

Figure 7, 8. 7) *Roeslerina media.* A. Asci. B. Paraphysis. C. Ascomas. D. Spores. 8) *Vibrissea obconica*. A. Ascus. B. Paraphysis. C. Ascus ring stained with Lugol. D. Spores. E. Apothecia.

***Scutomollisia* sp.**

Dead leaves of *Eriophorum vaginatum*.

Twice, 06.08.2012 (#Kh-3683), treed bogs.

Apothecia cupulate, sessile, arise from under scutulum, young hemispherical with small opening, later cupulate with incurved margin, to 650 mk width, 150 mk height; hymenium surface yellowish, convex; outer surface brown to pale brown, rough from loose cells; shield dark brown, ellipsoid, concave; base with some hyphae attaching to the substrate. Excipulum from medulla and ecta layers, medulla from not gelatinous, loose, interwoven hyphae about 1.7 mk broad, their tips form ecta layer, e.g. end cells (2–3) of hyphae enlarged, densely placed, outer cells (12.5 x 9.5 mk) covered by brown exudates, at the edge of receptacle the same cells have hair-like shape, e.g. cylindrical, with clavate ends (about 50 x 5 mk); shield formed by glued dark brown hyphae, indistinct arrangement; asci enlarged to conical tip, long or short stalked, occasionally two-stalked, with clamp, thickened in upper part, pore euamyloid, 75–95 x 8.4–13; paraphyses cylindrical, slightly enlarged to tip (2–3 mk), branched, segmented; spores vermiform, broader and 2–3 segmented in upper part, narrower in basal part, obtuse-ended, with many round and ellipsoid guttules (in dead state), 53 (39–66) x 2,.8 (2.2–3.5) (n=15).

Other species of *Scutumollisia* grow saprotrophically on sedges. Scheuer [1998] provide description of taxon with similar characteristics, but it was left underdescribed (*Scutomollisia spec. indet.* from *Cladium mariscus*). Farther taxonomic work is necessary.

***Vibrissea obconica* (Kanouse) A. Sánchez** (fig. 8)

Dead twigs of *Chamaedaphne calyculata*.

Single collection, 24.06.2012 (#Kh-3604), treed bog.

Apothecia cupulate, sessile or with short thick stipe, up to 500 mk height, 500 mk in diameter, receptacle white to yellowish, with pure white cottony layer of spores, on conspicuous dark brown subiculum. Ectal excipulum from textura angularis/prismatica, at the base cells large, angular, isodiametric, thick-walled, with longitudinal axes perpendicular to the outer surface, in the middle and up to margin inner cells becoming elongated, laying parallel and yet thick-walled, outer layer from cells with thinner walls, ellipsoid to prismatic, arranged in rows, with free hair-like chains from 4–5 cells scattered at all length and densely covering the margin; medulla from textura intricata, hyphae about 2 mk broad, becoming parallel when approaching the excipulum; subiculum hyphae cylindrical, straight, septated, 4.5 mk thick, brown; asci long and narrow, gradually enlarged from base (2 mk) to obtuse-conical tip, 188 (177–213) x 7.5 (6.5–8), clamped, with small amyloid pore (1 mk); paraphyses cylindrical, segmented, end segments clavate, exceeding the asci, near 2 mk broad in middle part, 5.6 (4–11) mk at enlarged tips; spores filiform, heteropolar, segmented (about 15 septa), circinate, with tiny guttules, not disarticulating, not germinating, mean length 184 mk (5 unbent spores measured, but impossible to do precise measure), 1.6 mk broad.

Saprotroph on different plant substrates soaked in water. Branches of *Chamaedaphne calyculata* was reported in first description [Beaton, Weste, 1980]. But other substrates (stems of grasses) also registered in Europe (H.O. Baral, comments at AscoFrance). Known from North America, Europe.

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ДИСКОМИЦЕТЫ РАСТИТЕЛЬНОГО ОПАДА ВЕРХОВЫХ БОЛОТ (ЗАПАДНАЯ СИБИРЬ)

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